

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A semiconductor light-emitting element composed of at least compound semiconductors comprising an active layer consisting of a quantum well structure including a well layer and barrier layers between which said well layer is sandwiched, wherein said well layer has in part a doped well region to which an n-type impurity is added at the interface with said barrier layer on an electron injection side and in the vicinity of said interface, and wherein said barrier layer has a doped barrier region to which said n-type impurity is added at least at said interface and in the vicinity of said interface.

2. (original): The semiconductor light-emitting element according to claim 1, wherein the film thickness t of said doped well region is in the range of $0 < t < (w/2)$, where w is the film thickness of said well layer.

3. (original): The semiconductor light-emitting element according to claim 1 or 2, wherein said barrier layer has an undoped barrier region to which said n-type impurity is not added at the interface with said well layer on the hole injection side, and in the vicinity of said interface.

4. (original): The semiconductor light-emitting element according to claim 3, wherein the film thickness of said undoped barrier region of said barrier layer is equal to or less than the film thickness of said doped well region.

5. (original): The semiconductor light-emitting element according to claim 1 or 2, wherein said doped barrier region spreads throughout said entire barrier layer.

6. (currently amended): The semiconductor light-emitting element according to claim 1, 2, or 4 ~~any one of claims 1-5~~, wherein the crystalline structure of said active layer is a wurtzite structure, and the principal plane of said active layer is the (0001) plane.

7. (currently amended): The semiconductor light-emitting element according to claim 1, 2, or 4 ~~any one of claims 1-6~~, wherein said compound semiconductor consists mainly of a group III nitride $B_{x'}Al_xGa_yIn_zN$ ($x' + x + y + z = 1$).

8. (currently amended): The semiconductor light-emitting element according to claim 1, 2, or 4 ~~any one of claims 1-7~~, wherein said n-type impurity is Si or Ge.

9. (currently amended): The semiconductor light-emitting element according to claim 1, 2, or 4 ~~any one of claims 1-8~~, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.

RESPONSE UNDER EX PARTE QUAYLE
U.S. Application No. 10/535,175

Attorney docket No. Q87885

10. (canceled).

11. (canceled).

12. (canceled).

13. (canceled).

14. (canceled).

15. (canceled).

16. (canceled).

17. (canceled).

18. (canceled).

19. (new): The semiconductor light-emitting element according to claim 3, wherein the crystalline structure of said active layer is a wurtzite structure, and the principal plane of said active layer is the (0001) plane.

20. (new): The semiconductor light-emitting element according to claim 5, wherein the crystalline structure of said active layer is a wurtzite structure, and the principal plane of said active layer is the (0001) plane.

21. (new): The semiconductor light-emitting element according to claim 3, wherein said compound semiconductor consists mainly of a group III nitride $B_{x'}Al_xGa_yIn_zN$ ($x' + x + y + z = 1$).

22. (new): The semiconductor light-emitting element according to claim 5, wherein said compound semiconductor consists mainly of a group III nitride $B_{x'}Al_xGa_yIn_zN$ ($x' + x + y + z = 1$).

23. (new): The semiconductor light-emitting element according to claim 6, wherein said compound semiconductor consists mainly of a group III nitride $B_{x'}Al_xGa_yIn_zN$ ($x' + x + y + z = 1$).

24. (new): The semiconductor light-emitting element according to claim 3, wherein said n-type impurity is Si or Ge.

25. (new): The semiconductor light-emitting element according to claim 5, wherein said n-type impurity is Si or Ge.

26. (new): The semiconductor light-emitting element according to claim 6, wherein said n-type impurity is Si or Ge.

27. (new): The semiconductor light-emitting element according to claim 7, wherein said n-type impurity is Si or Ge.

28. (new): The semiconductor light-emitting element according to claim 3, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.

29. (new): The semiconductor light-emitting element according to claim 5, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.

30. (new): The semiconductor light-emitting element according to claim 6, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.

31. (new): The semiconductor light-emitting element according to claim 7, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.

32. (new): The semiconductor light-emitting element according to claim 8, wherein the concentrations of the n-type impurity in said doped well region and said doped barrier region are $8E17/cc$ to $1E19/cc$ respectively.